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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,515	12/01/2005	Kunio Nakashima	2005_1033A	2998

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EXAMINER	
SAVAGE, JASON L	
ART UNIT	**PAPER NUMBER**
1775	

DATE MAILED: 10/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/541,515	NAKASHIMA ET AL.	
	Examiner	Art Unit	
	Jason L. Savage	1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 11-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4, 6-8, 11-16, 19-30* is/are rejected.

7)☒ Claim(s) *5,17 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102/103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 21-30 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tanaka et al. (US 5,666,644).

Tanaka teaches a bearing comprising an electrodeposited upper layer of tin film and an electrodeposited copper alloy underlayer (col. 3, ln. 43-52). Tanaka further teaches that the electroplated underlayer is subjected to diffusion to forma copper-tin intermetallic (col. 3, ln. 43-51). As such, the electrodeposited film of Tanaka meets the claim limitations wherein a upper layer is an alloy of tin and copper is formed on an underlayer comprising an alloy of copper and tin since the diffusion would cause copper to diffuse into upper layer forming an alloy of the claimed material.

In the alternative, given Applicant's claims that the tin and copper alloy may contain tin an amount that is "less than 100 weight %" as recited in claim 22, absent a teaching of the criticality or showing of unexpected results when the tin alloy contain a minor amount of copper, it would not provide a patentable distinction over the prior art. Specific claimed alloy, whose compositions are in such close proportions to those in the prior art that, prima facie one skilled in the art would have expected them to have the same properties, must be considered to have been obvious from known alloys, Titanium Metals Corporation of America V. Banner, 227 USPQ 773.

Furthermore, it is known in the art to employ tin alloys with copper as overlay layers for sliding members. It would have been within the purview of one of ordinary skill in the art to have used a tin alloy as the overlay layer with a reasonable expectation of success.

Regarding claim 24, Tanaka teaches the thickness of the layers are 1.5 microns (col. 3, ln. 43-52).

Regarding claims 25-30, Tanaka teaches the composite is formed on a substrate such as steel (col. 2, ln. 32-44).

Claims 2, 7-8 and 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP'355 (JP 11-257355 English Machine Translation).

JP'355 teaches a sliding member comprising an electrodeposited upper layer of tin or indium film and an electrodeposited copper-tin alloy underlayer (abstract/solution). JP'355 further teaches that the sliding member may have a zinc under layer (DETAILED DESCRIPTION: par [0012]). As such, JP'355 anticipates the claims wherein the film has an under layer of zinc with an upper layer of tin

Regarding claim 7, JP'355 teaches that the under layer may be zinc. Given Applicant's claims that the zinc and copper alloy may contain zinc an amount that is "less than 100 weight %", absent a teaching of the criticality or showing of unexpected results when the zinc alloy contain a minor amount of copper, it would not provide a patentable distinction over the prior art. Specific claimed alloy, whose compositions are

in such close proportions to those in the prior art that, prima facie one skilled in the art would have expected them to have the same properties, must be considered to have been obvious from known alloys, Titanium Metals Corporation of America V. Banner, 227 USPQ 773.

Regarding claim 8, JP'355 is silent as to the thickness of the upper layer and the zinc under layer. However, given that teaches that the thickness of the another under layer is between 1-30 micrometers (DEPTAILED DESCRIPTION – [0019]) it is the position of the Examiner that the zinc layer and upper layer would have thicknesses within a similar range. In the alternative, absent a teaching of the criticality or showing of unexpected results from the layers having the claimed thicknesses, it would not provide a patentable distinction over the prior art. It would have been within the purview of one of ordinary skill in the art to have determined the thickness necessary for the formed layers.

Regarding claims 12, JP'355 teaches the composite member is coated onto a steel backing (abs.).

Claim Rejections - 35 USC § 103

Claims 2-3, 6, 8, 11-14 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (US 5,666,644) in view of Sakai et al. (US 6,475,635).

Tanaka teaches a bearing comprising an electrodeposited upper layer of tin film and an electrodeposited copper alloy (col. 3, ln. 43-52). However, Tanaka does not teach that the under layer is an alloy that includes copper and zinc.

Sakai teaches a copper alloy for use as a sliding bearing material which exhibits resistance to fatigue (col. 1, ln. 7-11). Sakai further teaches that this copper alloy may contain additives such as tin which strengthens the matrix and enhances resistance to fatigue (col. 2, ln. 44-51). Sakai further teaches that the addition of other elements such as zinc further strengthens the matrix and enhances the resistance to fatigue (col. 3, ln. 1-9). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to have added zinc to the copper and tin alloy of Tanaka with a reasonable expectation of success that the layer would exhibit improved strength and resistance to fatigue. In response to the issue whether the reference is nonanalagous art, it has been held that the determination that a reference is from a nonanalogous art is twofold. First, one decides if the reference is within the field of the inventor's endeavor. If it is not, one proceeds to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved, In re Wood, 202 USPQ 171, 174. In the instant case, both Tanaka and Sakai are generally drawn to copper alloys suitable for use as sliding members

Furthermore, since Applicant does not claim any minimum amount of zinc in the under layer, absent a teaching of the criticality or showing of unexpected results when the copper alloy contain a minor amount of zinc, it would not provide a patentable distinction over the prior art. Specific claimed alloy, whose compositions are in such close proportions to those in the prior art that, prima facie one skilled in the art would have expected them to have the same properties, must be considered to have been

obvious from known alloys, Titanium Metals Corporation of America V. Banner, 227 USPQ 773.

Regarding claims 3, the upper layer of tin which has been subject to diffusion would meet the limitation of being an alloy of tin and copper having the claimed tin content. In the alternative, given Applicant's claims that the tin and copper alloy may contain tin an amount that is "less than 100 weight %", absent a teaching of the criticality or showing of unexpected results when the tin alloy contain a minor amount of copper, it would not provide a patentable distinction over the prior art.

Regarding claim 6, the under layer of Tanaka in view of Sakai would meet the claim limitation of being an alloy of copper and zinc wherein the copper content is within the claimed range.

Regarding claim 8, Tanaka teaches the thickness of the layers are 1.5 microns (col. 3, ln. 43-52).

Regarding claims 12, 14, and 20, Tanaka teaches the composite is formed on a substrate such as steel (col. 2, ln. 32-44).

Claims 2, 4, 6-8, 11-12, 15-16 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'355 (JP 11-257355 English Machine Translation) in view of Sakai et al. (US 6,475,635).

JP'355 teaches what is set forth above but is silent to some of the claim limitations.

Regarding claim 2, JP'355 teaches what is set forth above and further teaches that the under layer may be an alloy of copper such as an alloy of copper and tin but it is silent to the under layer being an alloy which contains copper and zinc. JP'355 further teaches that providing a materials which exhibited sufficient the strength has been an obstacle in providing bearings which were Pb free (DETAILED DESCRIPTION par[0005]).

Sakai teaches a copper alloy for use as a sliding bearing material which exhibits resistance to fatigue (col. 1, ln. 7-11). Sakai further teaches that this copper alloy may contain additives such as tin which strengthens the matrix and enhances resistance to fatigue (col. 2, ln. 44-51). Sakai further teaches that the addition of other elements such as zinc further strengthens the matrix and enhances the resistance to fatigue (col. 3, ln. 1-9). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to have added zinc to the copper and tin alloy of JP'355 with a reasonable expectation of success that the layer would exhibit improved strength and resistance to fatigue. In response to the issue whether the reference is nonanalagous art, it has been held that the determination that a reference is from a nonanalogous art is twofold. First, one decides if the reference is within the field of the inventor's endeavor. If it is not, one proceeds to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved, In re Wood, 202 USPQ 171, 174. In the instant case, both JP'355 and Sakai are generally drawn to copper alloys suitable for use as sliding members

Regarding claims 4 and 15-16, JP'355 teaches that soft upper layers containing indium are known. Although JP'355 does not recite the claimed amount of indium, it would have been within the purview of one of ordinary skill in the art to have recognized that alloys containing higher percentages of indium could be employed as the upper layer with a reasonable expectation of success.

Regarding claims 6 and 19-20, the composite film of JP'355 as modified by Sakai would meet the claim limitations wherein the under layer is an alloy layer of copper and zinc with the copper content being 50% or greater.

Regarding claim 8, JP'133 does not explicitly recite the thickness of the upper layer coating. However, it does teach that the under layer coating thickness is no more than 10-30 micrometers (DEPTAILED DESCRIPTION – [0019]) It would have been obvious to one of ordinary skill in the art to have formed the upper layer to have a thickness substantially the same or less than the thickness of the under layer coating.

Response to Arguments

Applicant's arguments with respect to claims 2-4, 6-8, 11-16 and 19-30 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues the references do not teach the newly claimed alloys for the under layer however in light of the rejections above, it is the position of the Examiner that the references would meet the claim limitations or make them obvious.

Applicant argues with respect to claims 21-30 that Tanaka and JP'355 do not teach an upper layer of an alloy of tin and copper. For the reasons set forth in the

rejections above, it is the position that Tanaka would meet the claim limitations or make them obvious.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Allowable Subject Matter

Claims 5 and 17-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Savage whose telephone number is 571-272-1542. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason Savage
9-27-06

JENNIFER C. MCNEIL
SUPERVISORY PATENT EXAMINER
9/30/06